PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2000-259386

(43)Date of publication of application : 22.09.2000

(51)Int.Cl. G06F 3/12
B41J 29/38
G06F 1/00

(21)Application number : 11-060896

(22)Date of filing : 08.03.1999

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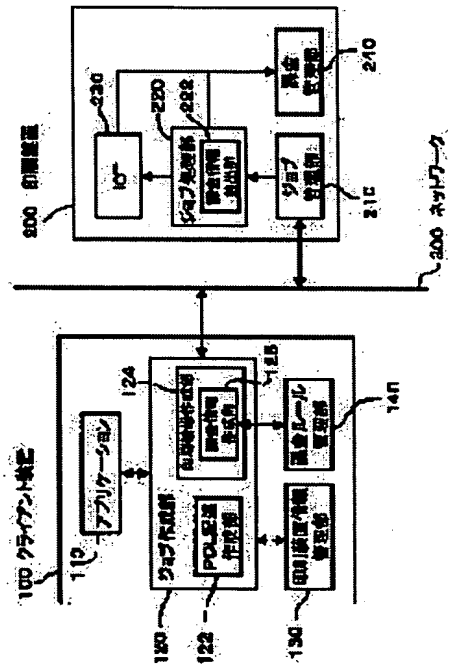
(54) PRINTING SYSTEM, PRINTING JOB PREPARATION DEVICE AND PRINTER

(57)Abstract:

PROBLEM TO BE SOLVED: To perform the same accounting for a case when a function instructed by a user is performed by a printer and when it is performed by a client device.

SOLUTION: In a client device 100 of this printing system, when a printing instruction is given to a document prepared by an application 110, an accounting information preparation part 126 obtains an accounting rule corresponding to a printing function instructed by a user from a charging rule management part 140 and obtains charging information such as an accounting value regarding the document printing processing according to the accounting rule. Then, a job preparation part 120 embeds the accounting information in the printing job which describes a printing image of the document and transmits it to a printer 200. In the printer 200, a job processing part 220 prepares a raster image of each page from the printing job and makes an IOT 230 print it. An accounting information extraction part 222 extracts the accounting information embedded in the printing job, an accounting management part 240 follows this accounting information and performs accounting processing regarding the printing job concerned.



LEGAL STATUS

[Date of request for examination] 11.07.2003

[Date of sending the examiner's decision of

rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

(19)日本国特許庁（ＪＰ）　(12)公開特許公報（Ａ）　(11)特許出願公開番号
特開2000－259386
（P2000－259386A）
(43)公開日　平成12年９月22日(2000.9.22)

(51)Int.Cl.'	識別記号	ＦＩ		テーマコード（参考）
Ｇ０６Ｆ　3/12		Ｇ０６Ｆ　3/12	Ｔ	２Ｃ０６１
Ｂ４１Ｊ　29/38		Ｂ４１Ｊ　29/38	Ｚ	５Ｂ０２１
Ｇ０６Ｆ　1/00	３７０	Ｇ０６Ｆ　1/00	３７０Ｆ	

審査請求　未請求　請求項の数９　ＯＬ　（全 13 頁）

(21)出願番号　特願平11－60896

(22)出願日　平成11年３月８日(1999.3.8)

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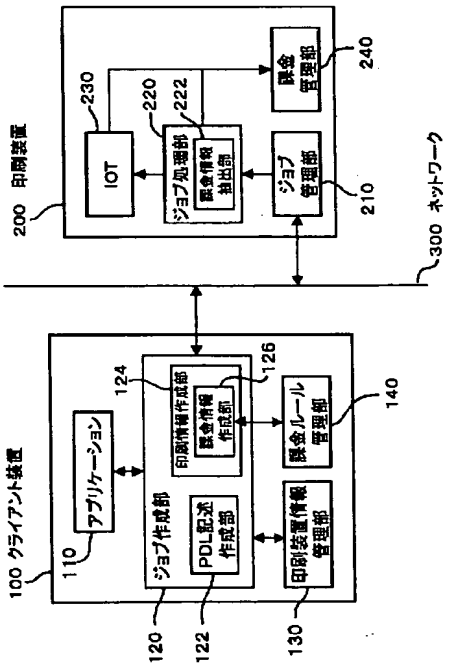
Ｆターム(参考)　2C061 AP01 BB10 HH03 HJ10 HK14
HK15 HN05 HQ17
5B021 BB02 DD07 FF03 KK01

(54)【発明の名称】　印刷システム及び印刷ジョブ作成装置及び印刷装置

(57)【要約】
【課題】　ユーザから指示された機能を印刷装置、クライアント装置のいずれで実現した場合も同じ課金が行われるようにする。
【解決手段】　クライアント装置１００では、アプリケーション１１０で作成された文書に対して印刷指示が行われた場合、課金情報作成部１２６が、ユーザから指示された印刷機能に対応する課金ルールを課金ルール管理部１４０から求め、その課金ルールに従ってその文書の印刷処理に関する課金値等の課金情報を求める。そして、ジョブ作成部１２０は、その文書の印刷イメージを記述した印刷ジョブにその課金情報を埋め込んで印刷装置２００に送信する。印刷装置２００では、ジョブ処理部２２０が、その印刷ジョブから各ページのラスタイメージを作成してＩＯＴ２３０に印刷させる。このとき、課金情報抽出部２２２が印刷ジョブに埋め込まれた課金情報を抽出し、課金管理部２４０がこの課金情報に従い、当該印刷ジョブについての課金処理を行う。



式であるが、この他に印刷装置が提供するサービス内容に応じて追加の課金を行うシステムも存在する。例えば、印刷装置独自の丁合機能等に追加の課金を行うシステム（特開平７－２６１８６８号公報）や、カラー機能モードに応じて追加課金を行うシステム（特開平１０－２０９５７号公報）、印刷する印刷物を処理するのに所要した時間で追加課金するシステム（特開平５－１０８９６１号公報）、印刷対象物の修正回数などに応じて課金するシステム（特開平１０－２３２９１４号公報）などである。

【０００６】

【発明が解決しようとする課題】印刷システムのモデルチェンジの際、既存の機能を実現する機構が大幅に変更される場合がある。このような場合、モデルチェンジの前後で課金方式に不整合が生じる場合がある。

【０００７】例えば、印刷装置の高度な機能の一つに、両面印刷を行う際に章の先頭として指定されたページが必ず用紙の表の面になるように用紙送りを調整するチャプタースタート機能がある。この機能は、比較的高級な印刷装置に搭載されている。しかし、同様の機能は、クライアントのアプリケーションやプリンタドライバに、章の末尾ページが用紙の表に来るとき白紙ページを表すＰＤＬ（ページ記述言語）記述をそのページの次に自動挿入する機能を追加することにより、チャプタースタート機能を持たない印刷装置を用いたシステムでも実現することができる。前者、すなわちチャプタースタート機能を持つ印刷装置を用いたシステムでは、章の最後の用紙の裏面を印刷しなかった場合は印刷装置自体がその事実を知っているので、最後の用紙の裏面を課金しないようにすることができる。これに対し、後者、すなわちクライアントのソフトウエアでチャプタースタート機能を代替処理するシステムでは、印刷装置では白紙ページでも一般のページと同様にイメージ処理を行うので、印刷装置は、章の最後のページの裏面が白紙である場合も課金してしまう。したがって、顧客のシステムを前者から後者に移行した場合、チャプタースタート処理時の課金の額が増えることになる。このような課金の増加は、出力部数が多い顧客にとっては大きな問題となる。円滑なシステム移行のために、課金方式の整合性をとるための仕組みが求められる。

【０００８】以上は、システム移行時の問題であったが、全く新規に印刷システムを導入する場合にも、従来システムには、提供するサービスに対するきめ細かい課金体系を提供しにくいという問題があった。すなわち、従来システムでは印刷装置側の機構で提供するサービスについてはその内容に応じた課金を行うことができたが、チャプタースタートなどの印刷装置の機能をクライアント装置側のソフトウエアで肩代わりする場合は、印刷装置は通常の１ページ単位の料金で課金することしかできない。なぜなら、チャプタースタートのために追加した白紙ページも印刷ジョブのデータ上では１つのページの記述として存在し、印刷装置では内容のある通常ページの記述と区別できないからである。このように、従来システムでは、印刷装置の機能をクライアント側で肩代わりした場合、課金方式が固定的となり、機能の内容に応じたきめ細かい料金設定を行うことができなかった。

【０００９】本発明は以上のような問題を解決するためになされたものであり、印刷システム移行の前後での課金の整合性が容易に確保でき、クライアント装置も含めた印刷システム全体としてのサービスに対してきめ細かい課金体系を提供可能な課金システムを提供することを目的とする。

【００１０】

【課題を解決するための手段】上記課題を解決するため、本発明に係る印刷システムは、印刷ジョブを作成する印刷ジョブ作成装置と、印刷ジョブを処理して印刷を行う印刷装置と、を含む印刷システムであって、前記印刷ジョブ作成装置は、作成した印刷ジョブについての課金情報を作成して当該印刷ジョブに関連づけて印刷装置に送信する課金情報作成手段を有し、前記印刷装置は、印刷ジョブについての課金処理を、当該印刷ジョブに関連づけられた課金情報に基づいて実行する第１課金手段を有することを特徴とする。

【００１１】この構成によれば、印刷装置に第１課金手段を設けたことにより、処理したページ数に基づき課金を行うのではなく、印刷ジョブ作成装置側で付与された課金情報に基づいた課金を行うことができる。印刷装置の機能を印刷ジョブ作成装置側で代替処理した場合でも、印刷ジョブ作成装置で指定された印刷上検討の内容に応じて適切な課金情報を作成することができる。したがって、同じ機能を印刷装置、印刷ジョブ作成装置のどちらで実現した場合でも、整合性のある課金を行うことができる。

【００１２】本発明の好適な態様では、印刷装置は、印刷ジョブの処理において出力したページ数に基づいて課金処理を行う第２課金手段と、印刷ジョブ作成装置から受信した印刷ジョブに課金情報が関連づけられているときは第１課金手段に、その他の場合は第２課金手段に課金処理を行わせる課金管理手段とを有する。この態様によれば、課金情報の作成機能のない印刷ジョブ作成装置からの印刷ジョブにも対応できる。

【００１３】また、別の好適な態様では、課金情報は、印刷装置において印刷ジョブの処理の際に出力したページ数に基づき求められる課金値に対する補正値であり、前記第１課金手段は、印刷ジョブの処理で出力したページ数に基づき求めた課金値を前記課金情報により補正することにより、当該印刷ジョブの課金値を決定する。この態様は、従来型のページ数ベースの課金方式に容易に適用することができる。

【００２６】ここで、本実施形態では、印刷ジョブを作成する際に、その印刷ジョブの課金情報を作成し、これを印刷情報の一項目として印刷ジョブに追加する。これにより、印刷装置２００では、この課金情報をもとに課金処理が行えるようになる。課金情報の作成は、課金情報作成部１２６が行う。課金情報としては、例えば課金すべきページの数を用いることができる。この場合、課金情報作成部１２６は、印刷ジョブが表す文書の総ページ数のうち、課金すべきページ数を計算して課金情報とする。例えば、チャプタースタート機能をクライアント装置１００側での白紙ページ記述の挿入処理により代替し、挿入した白紙ページには課金しないという場合、課金情報作成部１２６は、印刷ジョブの総ページ数から挿入した白紙ページの数を引いた値を課金情報とする。なお、課金情報の作成手順等については後に改めて説明する。

【００２７】（３）印刷装置情報管理部１３０

印刷装置情報管理部１３０は、クライアント装置１００から利用可能な各印刷装置２００の持つ機能に関する情報を記憶し管理する。図２は、印刷装置情報管理部１３０に登録されたある印刷装置の機能情報の一例である。これによれば、この印刷装置は、合紙（あいし）機能は持っているが、チャプタースタートやページブレックス機能などは持っていないことがわかる。印刷装置情報管理部１３０には、各印刷装置ごとに、このような機能情報が登録されている。印刷装置情報管理部１３０への機能情報の登録は、印刷装置をネットワーク３００等に接続したときに、システム管理者により行われる。

【００２８】印刷装置が持っていない機能のうち、あるものはクライアント装置１００のアプリケーション１１０又はジョブ作成部１２０又はそれら両者の共同作業により代替することができる。既に説明したチャプタースタートはその典型であるし、図２に例示した合紙、ページブレックス、ラベル機能、丁合指定の各機能についても、同様の代替処理が可能である。

【００２９】印刷装置情報管理部１３０の保持する情報は、印刷ジョブ作成時にジョブ作成部１２０から参照される。すなわち、ジョブ作成部１２０は、印刷装置情報管理部１３０を参照し、ユーザから指定された機能を出力先の印刷装置が持っているか否かを判定する。そして、出力先の持たない機能の指定があり、かつその機能がクライアント装置１００で代替処理可能である場合は、ジョブ作成部１２０が所定の代替処理を行う。

【００３０】（４）印刷装置機能及びクライアント側におけるその代替処理

ここで、図２に例示した各印刷装置機能と、クライアント装置１００側でのその代替処理の内容について説明しておく。なお、チャプタースタート機能及びその代替処理については、既に従来技術にて説明済みなので省略する。

【００３１】ａ）合紙

合紙とは、ページとページの間に何も書かれていない用紙を挿入する機能であり、例えば各印刷ジョブ同士の出力結果の区切りや、１つの印刷ジョブの中の各パートの区切りを示すためなどに用いられる。クライアント装置にて、印刷ジョブの先頭、末尾、あるいは「何ページの後」などといった形で合紙挿入位置を指定すると、印刷装置がその指定位置に白紙（合紙）を挿入する。挿入した合紙に課金するか否か、あるいはいくら課金するかは個々の印刷装置によるが、一般的には、合紙を特別な機能と考え、合紙１枚につき１ページ分の課金を行う場合が多い。

【００３２】クライアント装置側での合紙機能の代替は、印刷ジョブ中の合紙の位置に白紙ページを表すＰＤＬ記述を挿入することにより行える。合紙１枚の指定につき、片面印刷の場合は１ページ、両面印刷の場合は２ページ分、白紙ページ記述を挿入する。したがって、この機能を用いると、例えば両面印刷の場合、従来の印刷装置の課金処理では、合紙機能に全く課金しない印刷装置と比べた場合、合紙１枚につき２ページ分課金が高くなり、合紙１枚につき１ページ分課金する印刷装置と比べた場合、合紙１枚につき１ページ分課金が高くなることになる。

【００３３】ｂ）ページブレックス

ページブレックスとは、ページごとに両面・片面指定ができる機能である。例えば、８ページの文書を１，６，７，８ページ目は片面印刷、２，３，４，５ページ目は両面印刷と指示しておけば、ページブレックス機能を有する印刷装置の場合は、次のような印刷結果を出力する。なお、次の表記において「Ａ／Ｂ」が１枚の用紙の印刷結果を表し、Ａが用紙の表側、Ｂが用紙の裏側を示す。Ａ、Ｂに当てはめられた数字は文書中でのページ番号を示し、Ｘは無印字（したがって、イメージ処理も行わない）の面を示す。

【００３４】

【数１】

１／Ｘ　２／３　４／５　６／Ｘ　７／Ｘ　８／Ｘ

印刷装置がページブレックス機能を持つ場合、クライアント装置は、このような８ページの文書のデータを、ページブレックスを指定した上で印刷装置に送ればよい。印刷装置は、用紙送りを調節することにより、指定通りの印刷を実現する。なお、課金は、印刷処理したページ数分（上記の例では８ページ）とされる場合が一般的である。

【００３５】ページブレックス機能のクライアント装置側での代替は、片面指定されたページの記述の次に白紙ページのＰＤＬを挿入した上で、文書全体について両面印刷を指定することで行える。例えば、さきに例示した８ページの文書の場合、印刷ジョブ中の１，６，７ページの記述の後にそれぞれ白紙ページの記述を挿入し（８

ＤＬ記述を解釈してイメージデータを生成する解釈処理系（インタプリタと呼ばれる）に加え、印刷ジョブから印刷情報を検出し、それに応じた制御命令をＩＯＴ２３０に発行する機能を有する。印刷ジョブには、印刷情報の一種として課金情報が含まれる可能性があるが、ジョブ処理部２２０では課金情報抽出部２２２が印刷ジョブから課金情報を抽出する。

【００４８】課金管理部２４０は、印刷装置２００における課金処理を行うための機構である。図４に、課金管理部２４０の詳細構成の一例を示す。図示の構成では、課金管理部２４０は、第２課金処理部２４２、第１課金処理部２４４及び課金累積部２４６を備えている。

【００４９】課金累積部２４６は、印刷装置２００が処理した各印刷ジョブの課金値の累積結果を保持する機構である。例えば、処理したページ数で課金の値を表現する場合、課金累積部２４６は、例えば処理したページ数をカウントするカウンタでよい。このカウンタは、初期化時以降にそれまでに処理したページの数を保持している。ページ数にページ当たりの単価をかけて金額に換算してカウントすることもできるが、以下では説明を簡単にするためページ数を課金値とする。なお、当然ながら、課金の単位に何を選ぶかは、本発明の本質とは無関係である。

【００５０】第２課金処理部２４２は、従来から知られている、処理したページ数に基づき課金する機構である。第２課金処理部２４２は、１つの印刷ジョブの処理が完了するまで、例えばＩＯＴ２３０から出力される１ページごとの印刷完了信号を順次カウントする。また、この代わりに、ジョブ処理部２２０による１ページのイメージ形成完了の信号をカウントしてもよい。いずれをとるかは印刷装置２００の構造による。さらに、印刷装置２００が提供する様々な機能（例えば丁合や特殊画像処理など）の利用に応じてカウント値を上乗せする仕組みを設けることもできる。このように第２課金処理部２４２は、「印刷装置が行った処理」に応じた課金値を決定する機構であると言える。

【００５１】これに対し、第１課金処理部２４４は、印刷ジョブに含まれる課金情報に基づき課金する機構である。第１課金処理部２４４は、課金情報抽出部２２２から、印刷ジョブから抽出した課金情報を受け取り、この課金情報に従って課金累積部２４６のカウンタをインクリメントする。例えば、課金情報が「印刷ジョブに対して課金すべきページ数」を表している場合、第１課金処理部２４４は、そのページ数分だけ課金累積部２４６のカウンタをインクリメントする。

【００５２】課金管理部２４０は、このような２つの課金処理部を有し、印刷ジョブが課金情報を含んでいない場合は第２課金処理部２４２に課金処理を行わせ、課金情報を含んでいる場合には第１課金処理部２４４に課金処理を行わせる。このように、課金管理部２４０は、課金情報を含んだ印刷ジョブについてはその課金情報に従って課金を行い、課金情報を含まない印刷ジョブについては従来通りの課金を行うことができる。したがって、本実施形態の印刷装置２００は、課金情報作成部１２６を持たないクライアント装置からの印刷ジョブについても、課金処理を行うことができる。

【００５３】以上、本実施形態の印刷システムの構成を説明した。以上では、用紙への印刷を行うＩＯＴ２３０と、ＩＯＴ２３０の制御を行うシステム（ジョブ管理部２１０、ジョブ処理部２２０等）とが一体となった構成を示したが、本発明はこれら両者を別装置としてネットワークあるいはケーブルで接続した構成にも当然適用可能である。

【００５４】［処理手順］次に、本実施形態の印刷システムにおける課金処理の手順について説明する。

【００５５】＜クライアント装置での処理＞クライアント装置１００では、印刷ジョブに対応づけるべき課金情報を生成する。この処理は、ユーザによるアプリケーション１１０のユーザインタフェースからの印刷指示によって開始される。

【００５６】ユーザは、このユーザインタフェースから、文書を印刷させる印刷装置２００を指定し、用紙サイズや部数等の各種印刷条件を設定した上で、印刷実行を指示する。この指示が入力されると、アプリケーション１１０は、ジョブ作成部１２０を起動し、出力先の印刷装置２００の名前や印刷条件などを渡して印刷ジョブの作成を依頼する。

【００５７】これを受けたジョブ作成部１２０では、ＰＤＬ記述作成部１２２がアプリケーション１１０の文書データからＰＤＬ記述を生成していく。このとき、印刷条件などにチャプタースタート機能や合紙機能などの機能の指定があれば、ジョブ作成部１２０は、印刷装置情報管理部１３０を参照し、その指定された機能が出力先の印刷装置２００にあるか否かを調べる。出力先が、指定された機能を持っていない場合は、ＰＤＬ記述作成部１２２は、白紙ページ記述挿入など、その機能に対する代替処理を行う。なお、各機能に対する代替処理について既に説明した。出力先が指定された機能を持っている場合は、ＰＤＬ記述作成部１２２は通常のＰＤＬへの変換処理を行えばよい。

【００５８】このようなＰＤＬ記述の作成処理の後又はこの処理と並行して、印刷情報作成部１２４は、ユーザーが指示した印刷条件、例えば用紙サイズ/部数等の情報を、印刷装置が解釈できるように印刷情報として作成する。

【００５９】この時、課金情報作成部１２６は、その印刷ジョブに対する課金情報を求める。ここで、その印刷ジョブに、チャプタースタート等の「機能」の使用が指示されている場合には、この機能に対応する課金ルールを課金ルール管理部１４０から求め、そのルールに従っ

り、課金情報抽出部２２２は、この情報を課金管理部２４０に送信する。これを受けた課金管理部２４０では、今回の印刷ジョブについては課金情報に基づく課金処理を行うべきと判定し、第１課金処理部２４４を動作させる。

【００７０】印刷情報に関する処理が終わると、ジョブ処理部２２０は、ＰＤＬインタプリタ機能を含む公知の印刷ジョブ処理機能により印刷ジョブを順に処理し、その結果生成された各ページのイメージをＩＯＴ２３０を介して印刷出力する。図５の例では、この時６ページ目として白紙イメージが生成され、その結果６ページ目は白紙として出力されることになる。図５の印刷ジョブの場合、ジョブ処理部２２０では１０ページのイメージ処理を行い、ＩＯＴ２３０も１０ページ分の出力動作を行う。この１０ページすべての出力が完了したら、ジョブ処理部２２０はその旨を課金管理部２４０に通知する。これを受けた課金管理部２４０では、第１課金処理部２４４が、当該印刷ジョブの課金情報から当該ジョブについて課金すべきページが９ページであると認識し、課金累積部２４６が保持する課金値を９ページ分だけ増加させる。

【００７１】このような処理により、印刷装置２００が実際にイメージ処理したページ数（例では１０ページ）にかかわらず、予め設定した課金ルールに従って有効なページ数分（例では９ページ）だけ課金することができる。

【００７２】以上、課金情報に基づく印刷装置２００での課金処理について説明した。なお、課金情報作成機能を持たない在来型のクライアント装置から印刷ジョブを受け取った場合には、ジョブ処理部２２０にて課金情報が含まれていないことが検出される。すると、その旨が課金管理部２４０に通知され、この結果、課金情報によらない内部的な課金処理を行う第２課金処理部２４２が動作し、１ページの処理を行うごとに課金累積部２４６のカウント値を１ページ分ずつ増加させるなどの、予め印刷装置２００に登録された処理ページ数ベースの課金シーケンスが実行される。

【００７３】なお、以上の例は、チャプタースタート機能に関して課金を行わない場合の例であった。しかしながら、課金方式は装置ベンダとユーザとの間の取り決めであり、チャプタースタート機能について課金をする場合もありうる。例えば上述の９ページのオリジナル文書に対し、６ページ目が表側になるようにチャプタースタートを指定して両面印刷を行う例において、チャプタースタートのために増えた白紙ページに対しても１ページ分の課金を行うと設定した場合を考える。この場合、課金値は挿入される白紙ページも含めた１０ページとなる。

【００７４】以上、チャプタースタート機能を例にとったが、他の機能を指定した場合も同様である。例えば、合紙を指定した場合を考える。図３に示した課金ルールの例では、合紙は１枚当たり１ページ分の課金と設定されている。すなわち、両面印刷でも片面印刷でも合紙１枚につき１ページ分の課金である。このルールは、出力先が合紙機能を持つ場合でも、持たない場合でも同じである。すなわち、印刷装置の合紙機能を用いる場合でも、クライアント装置側で白紙ページを挿入することにより合紙機能を代替する場合でも、クライアント装置側で課金情報を作成するに当たっては同等に扱う。もし印刷装置の合紙機能に特別の課金を行いたいような場合には、課金情報を生成せず、課金処理を印刷装置側の課金システムに任せればよい。さて、合紙の指定があった場合、クライアント装置１００の課金情報作成部１２６は、オリジナル文書のページ数に、挿入する合紙の「枚数」を加算し、これを課金情報とする。例えば両面印刷で、出力先の印刷装置に合紙機能がない場合において、１０ページのオリジナル文書に合紙を２枚挿入する場合には、ジョブ作成部１２０の合紙代替処理では２×２（＝４）ページ分の白紙ページの記述を挿入するので、印刷装置２００でイメージ処理するページ数は１４ページになる。しかしながら、課金情報作成部１２６で作成される課金情報は、オリジナルのページ数に合紙２枚分を加算した１２ページとなる。印刷装置２００では、実際にイメージ処理した１４ページのページ数の代わりに、課金情報に示される１２ページ分を課金値に加算する。

【００７５】ページブレックス機能の課金については、チャプタースタートと同じに考えればよい。図３のルール例では、ページブレックスには課金を行わないと設定されている。したがって、ページブレックスのみが指定されているジョブの場合、課金情報作成部１２６は、オリジナル文書のページ数を課金情報とする。印刷装置２００がページブレックス機能を持たない場合、クライアント装置１００でその代替処理として白紙ページ記述の追加が行われ、その結果印刷装置２００はオリジナル文書のページ数よりも追加の白紙ページの分だけ多くイメージ処理を行うことになるが、課金は、課金情報に基づきオリジナル文書のページ数分だけとなる。

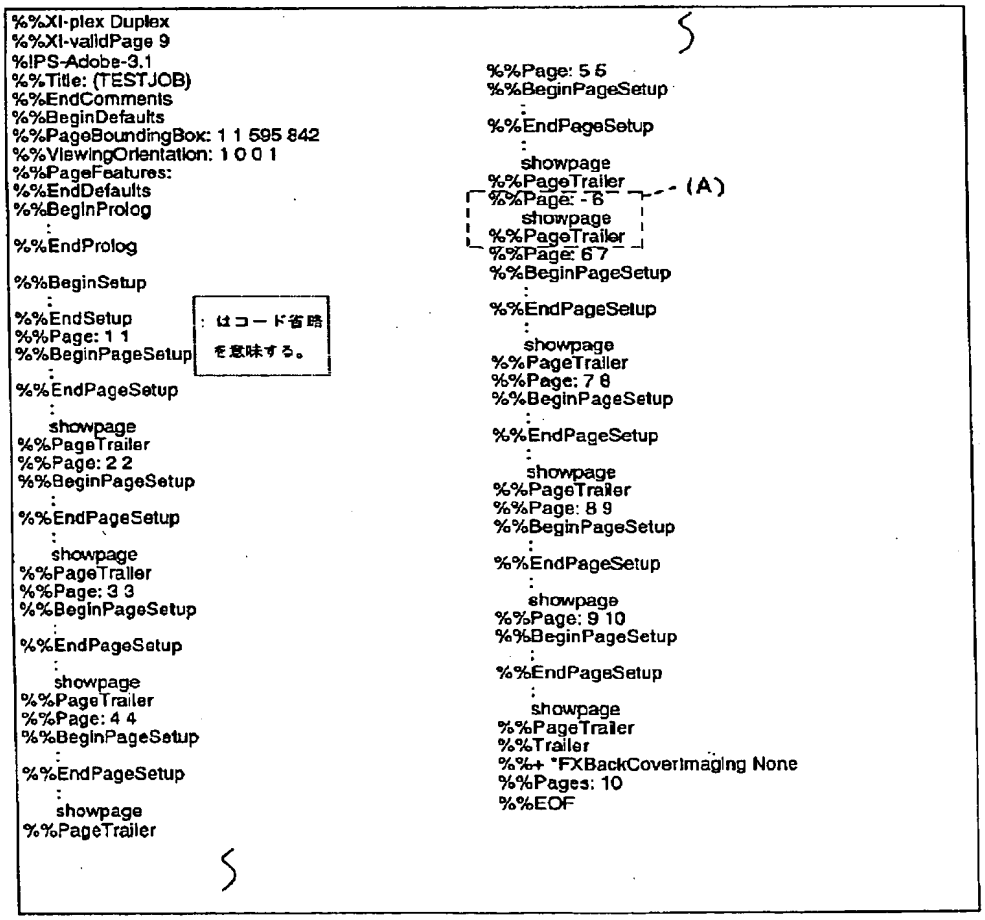
【００７６】ラベル機能については、図３のルールでは１フォーム当たりのページ数Ｖに応じて段階的に割引料金を設定している。すなわち、Ｖが１０ページまでなら各ページごとに１ページ分の課金を行うが、１０＜Ｖ≦１００の範囲では各ページについて０．８ページ分しか課金しない。さらにＶが１００を超える場合には、更に割り引いて１ページにつき０．４ページ分の課金となる。例えば、ジョブ作成部１２０でラベル機能の代替処理を行った場合、課金情報作成部１２６は、ラベルを使用したページの記述を作成するごとに現在のページ番号ＮをＰＤＬ記述作成部１２２から取得し、このＮともとのフォームの総ページ数Ｆとから$V = N / F$を求め、上

【００８９】
【数７】%%XI-validPageSelect 5 1 1 0 4 1
ここで、「%%XI-validPageSelect」がページごとの課金に関する情報であることを示す。後に続く数値の列は、左から２つずつ１組になっており、その組の中では、前の数値がページの数、後の数値が１ページ当たりの課金額を示す。すなわち、上記の例は、ジョブの先頭の５ページについてはそれぞれ１ページ当たり１の課金であり、その次の１ページについては課金が０、その後の４ページについては１ページ当たり１の課金であることを示している。
【００９０】この場合、課金情報作成部１２６は、課金ルール管理部１４０を参照し、各ページの課金額を決定し、それをもとに課金情報を記述する。例えば、チャブタースタート機能に課金を行わないという課金ルールの下で、ジョブ作成部１２０で白紙ページ挿入でチャブタースタート機能を代替処理した場合は、課金情報作成部１２６は、挿入した白紙ページについては課金が０であると判定し、それを示す課金情報を作成する。
【００９１】この変形例によれば、印刷装置における印刷ジョブの処理が障害等によって中断された場合でも、かなり正確な課金を行うことができる。すなわち、上記実施形態では、印刷ジョブの全ページの処理が終わった後で課金情報に基づいて課金のカウンタを操作していたので、ジョブが中断された場合にその中断時点での正確な課金値を求めることは困難であった。これに対し、この変形例では、ページごとに課金額が分かるので、ジョブの中断箇所までの正確な課金値を求めることができる。
【００９２】［変形例２］ラベル機能を用いた印刷では、１ページ印刷したといっても、ほんの一部が異なるだけで大部分は他のページと同じ内容であり、１ページ分課金したので高すぎると考えられる場合がある。また、合紙機能では、挿入した白紙に１ページ分の課金をしたのでは高すぎると捉えられがちであるが、合紙機能自体は便利な機能なのでこれに課金をしないのでは他のサービスとのバランスがとれない。
【００９３】このような場合は、課金額を小数点管理するにとにより、より妥当な課金を実現できる。次に示すのは、課金額における小数点管理を、変形例１のページ単位での課金管理と組み合わせた場合の課金情報の例である。
【００９４】
【数８】%%XI-validPageSelect 4 0.8 2 0.2 4 0.7
この例では、初めの４ページは１ページ当たり０．８ページ分の課金である。つまり、４ページの印刷が終わった時点では、課金の総計が３．２となり、小数点以下を丸めると３ページ分の課金となる。次の２ページは、ページ当たり０．２ページ分なので、６ページまでの印刷が終わった時点では課金総計が３．６となり、小数点以下を丸めた場合は３ページ分の課金で変化がない。すべてのページの印刷が終わると課金総計は６．４となり、最終的な課金の額はこれを丸めた６ページ分となる。
【００９５】［変形例３］課金情報を印刷ジョブに付加するという本実施形態のシステムでは、課金情報の改竄等に対する対策が必要となる。すなわち、課金情報が安く書き換えられたり、あるいは正当に課金情報が作成された後で、その印刷ジョブに新たなページを追加したり、等の不正行為を防止しなければならない。
【００９６】この対策として、この変形例３では、課金情報の有効性を証明するコードを課金情報に対応づけて管理する。例えば、単純な例としては、印刷ジョブ全体（印刷情報を含む）を１つのファイルと考え、２バイトのチェックサムを計算し、これを検査コードとする例が考えられる。検査コードを付加した課金情報の例を次に示す。
【００９７】
【数９】%%XI-validPage 9 17623
この例では「17623」の部分が検査コードである。印刷ジョブのどこか１つでも改竄されるとチェックサムの値が変わってくるので、この検査コードとの比較により改竄の事実を知ることができる。したがって、印刷装置では、課金情報を持つ印刷ジョブを受け取った場合は、まずチェックサムを実行して、課金情報に付属した検査コードと比較する。両者が一致した場合は、正当な印刷ジョブ、課金情報であると判断して、上述の実施形態の課金処理を行う。両者が一致しなかった場合は、印刷ジョブ本体か課金情報に改竄が加えられたと判断して、所定の処理を行う。この場合の処理としては、例えば、その印刷ジョブの処理を取り止めたり、あるいは印刷ジョブの処理は行うものの、課金に関しては付属の課金情報を無視し、処理したページ数をベースとした従来型の課金で課金を行ったり、などの方法がある。いずれにしても改竄検出時に行う処理の内容は予め登録しておく。
【００９８】なお、チェックサムは極めて単純な例であり、これではセキュリティが弱い場合も十分考えられる。セキュリティを強めるには、例えば、公知の暗号技術との組合せが有効である。すなわち、課金情報における課金値及び検査コードの少なくとも一方に対し、所定の暗号化処理を施すのである。これにより、課金情報は例えば次のようになる。
【００９９】
【数１０】%%XI-validPage dso2198dk0sah
この例では、課金値、検査コードの両方をまとめて暗号化している。印刷装置にはこの暗号の復号アルゴリズムが搭載され、これにより復号してからチェック及び課金処理を行う。このような暗号化により、課金情報の改竄は極めて困難になる。
【０１００】また、印刷装置のシークレットＩＤをクライアント装置に登録しておき、課金値やチェックサム値

【図３】

機能	課金必要項目	課金方式
チャプタースタート	無	課金しない
合紙	無	合紙1枚に対し1ページ分課金
ページブレックス	無	課金しない
ラベル機能	フォームの総ページ数F ページ番号N	V=N／F V≦10：1ページ分課金 10<V≦100：0.8ページ分課金 100<V：0.4ページ分課金
丁合指定	オリジナルジョブの総ページ数F、 ページ番号N	V=N／F V≦6：1ページ分課金 5<V≦100：0.5ページ分課金 100<V：0.2ページ分課金
・ ・ ・	・ ・ ・	・ ・ ・

【図５】



Japanese Publication number : **2000-259386 A**

CLAIMS

[Claim(s)]
[Claim 1] It is the printing system which it is a printing system including the print job listing device which creates a print job, and the airline printer which prints by processing a print job, and said print job listing device has an accounting-information creation means creates the accounting information about the created print job, relates with the print job concerned, and transmit to an airline printer, and is characterized by what said airline printer has for a 1st accounting means perform accounting about a print job based on the accounting information related with the print job concerned.
[Claim 2] It is the printing system characterized by having the accounting management tool with which the case of others makes the 1st accounting means carry out accounting to the 2nd accounting means when accounting information is related with a 2nd accounting means to perform accounting based on the pagination which outputted said airline printer in processing of a print job, and the print job which received from the print job listing device.
[Claim 3] It is the printing system according to claim 1 characterized by for said accounting information being the correction value over the accounting value calculated based on the pagination outputted in the airline printer on the occasion of processing of a print job, and said 1st accounting means determining the accounting value of the print job concerned by amending the accounting value calculated based on the pagination outputted by processing of a print job by said accounting information.
[Claim 4] It is a printing system given in either of claim 1 to claims 3 characterized by for said print job listing device to have the accounting rule management tool which is used in a print job, and which memorizes the accounting rule for every predetermined function, and for said accounting information creation means to search for the accounting rule corresponding to the function specified by the user from said accounting rule management tool, and to create accounting information based on the accounting rule searched for.
[Claim 5] Said print job listing device is a printing system according to claim 4 characterized by having further a means for registering and updating each function and the accounting rule corresponding to this to said accounting rule management tool.
[Claim 6] Said accounting information is a printing system given in either of claim 1 to claims 5 characterized by including the information on the accounting value for every page of a document which a print job expresses.
[Claim 7] It is a printing system given in either of claim 1 to claims 6 characterized by for

said print job listing device to create the inspection code for inspecting the justification of a print job and accounting information to associate, to have a means to relate with the print job concerned and accounting information, and to transmit to said airline printer, and for said airline printer to have a means judge whether related attachment by the print job concerned and accounting information is just based on the inspection code related with a print job and accounting information.

[Claim 8] The accounting rule management tool which is used in a print job and which memorizes the accounting rule for every predetermined print facility, A means to receive assignment of the print facility used in this printing processing corresponding to the printing directions to a document, The accounting rule corresponding to the specified print facility is searched for from said accounting rule management tool. The print job listing device which has an accounting information creation means to relate with the print job which created accounting information based on the accounting rule searched for, and was created according to printing directions, and to transmit this accounting information to an airline printer.

[Claim 9] It is the airline printer which has the accounting management tool which accounting is made to carry out to the 1st accounting means when accounting information is not related with a 1st accounting means perform accounting based on the accounting information which related with the print job and was received, a 2nd accounting means perform accounting based on the pagination outputted in processing of a print job, and the print job that received from the print job listing device, and makes accounting carry out to the 2nd accounting means when related.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the technique for accounting in the airline printer which carries out printing processing of the print job created by computer.

[0002]

[Description of the Prior Art] In the field of to some extent large-sized airline printers, such as an object for office, and business use, accounting is an important element. Even when an airline printer is sold not to mention the case of a leasing contract, periodical maintenance, inspection, etc. by the equipment vendor are required, and it is common to charge the tariff for it according to the amount of the equipment used.

[0003] The method of charging according to the pagination which carried out image processing by the airline printer side is often carried out as a charging system. The pagination counter for it is formed in an airline printer. By this method, even when the page of a blank paper is outputted, if image processing is performed, it will be charged.

[0004] When printing only one side in the last form by the double-sided print mode, a system which detects it with an airline printer and charges only a piece region also exists. Moreover, the system which does not charge a rear face in case the form of the last of double-sided printing is one side by the system using an airline printer without such a

function is indicated by JP,10-207310,A. In this system, the image to supply prepared the device which detects whether it is a blank paper and counts the pagination of a blank paper in the image control device which supplies an image to an airline printer, and has deducted the counted value of this blank paper from the counted value of the output pagination by the side of an airline printer to it.

[0005] Although it is the comparatively simple charging system which exists for many years of charging the above per [output 1 page (or one sheet)], the system which charges an addition according to the content of service which an airline printer offers also exists. For example, it is the system (JP,10-232914,A) which charges a **** function original with an airline printer etc. according to the count of correction of the system (JP,7-261868,A) which charges an addition, the system (JP,10-20957,A) which performs additional accounting according to color function mode and the system (JP,5-108961,A) which carries out additional accounting by the time amount which carried out necessary processing the print to print, and a printing object etc.

[0006]

[Problem(s) to be Solved by the Invention] The device in which the existing function is realized may be substantially changed in the case of the model change of a printing system. In such a case, mismatching may arise in a charging system before and after a model change.

[0007] For example, in case double-sided printing is performed to one of the advanced functions of an airline printer, there is a chapter start function to adjust a form feed so that the page specified as a head of a chapter may surely become the field of the table of a form. This function is carried in the comparatively high-class airline printer. However, when the tail page of a chapter comes for the application and the printer driver of a client to the table of a form, the system using an airline printer without a chapter start function can also realize the same function by adding the function which carries out automatic insertion of the PDL (Page Description Language) description showing a blank paper page at the degree of the page. Since the airline printer itself knows the data when the rear face of the form of the last of a chapter is not printed, it can avoid charging the rear face of the last form in the system using the former, i.e., an airline printer with a chapter start function. On the other hand, by the latter, i.e., the system which carries out alternative processing of the chapter start function by the software of a client, since image processing is performed like [a blank paper page] a general page in an airline printer, an airline printer will be charged, also when the rear face of the page of the last of a chapter is a blank paper. Therefore, when a customer's system is shifted to the latter from the former, the frame of accounting at the time of chapter start processing will mount up. The increment in such accounting poses a big problem for a customer with many output number of copies. The structure for taking the consistency of a charging system for smooth system shift is searched for.

[0008] Although the above was a problem at the time of system shift, also when a printing system was completely introduced newly, there was a problem of being hard to offer the fine accounting system over the service to offer in a system, conventionally. That is, although accounting according to the content was able to be conventionally performed in the system about the service offered by the device by the side of an airline printer, when

taking over the function of airline printers, such as a chapter start, by the software by the side of client equipment, an airline printer can only perform charging at the tariff of the usual 1-page unit. It is because it is undistinguishable from description of the usual page in which the blank paper page added for the chapter start also exists as description of one page on the data of a print job, and the content is in an airline printer. Thus, conventionally, in a system, when the function of an airline printer was taken over by the client side, a charging system was not able to become fixed and the fine rates according to the content of the function were not able to be performed.

[0009] It is made in order that this invention may solve the above problems, and the consistency of accounting before and after printing system shift can secure easily, and it aims at offering the accounting system which can offer a fine accounting system to the service as the whole printing system also including client equipment.

[0010]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, the printing system concerning this invention It is a printing system including the print job listing device which creates a print job, and the airline printer which prints by processing a print job. Said print job listing device It has an accounting information creation means to create the accounting information about the created print job, to relate with the print job concerned, and to transmit to an airline printer. Said airline printer It is characterized by having a 1st accounting means to perform accounting about a print job based on the accounting information related with the print job concerned.

[0011] According to this configuration, an airline printer cannot be charged based on the pagination processed by having established the 1st accounting means, but accounting based on the accounting information given by the print job listing-device side can be performed. Even when alternative processing of the function of an airline printer is carried out by the print job listing-device side, suitable accounting information can be created according to the content of examination on printing specified by the print job listing device. Therefore, adjustable accounting can be performed even when the same function is realized by which of an airline printer and a print job listing device.

[0012] In the suitable mode of this invention, when accounting information is related with a 2nd accounting means to perform accounting based on the pagination which outputted the airline printer in processing of a print job, and the print job which received from the print job listing device, in the case of others, it has the accounting management tool to which accounting is made to perform at the 2nd accounting means for the 1st accounting means. According to this mode, it can respond also to a print job from a print job listing device without the creation function of accounting information.

[0013] Moreover, in another suitable mode, accounting information is the correction value over the accounting value calculated based on the pagination outputted in the airline printer on the occasion of processing of a print job, and said 1st accounting means determines the accounting value of the print job concerned by amending the accounting value calculated based on the pagination outputted by processing of a print job by said accounting information. This mode is easily applicable to the charging system of the pagination base of a conventional type.

[0014] Moreover, in another suitable mode, a print job listing device has the accounting

rule management tool which is used in a print job and which memorizes the accounting rule for every predetermined function, and said accounting information creation means searches for the accounting rule corresponding to the function specified by the user from said accounting rule management tool, and creates accounting information based on the accounting rule searched for. In this mode, a fine accounting system can be offered by enabling registration of an accounting rule for every function. Moreover, in this mode, setting out of an accounting rule and modification are attained by establishing the means for registering and updating each function and the accounting rule corresponding to this to an accounting rule management tool.

[0015] Moreover, in another suitable mode, accounting information includes the information on the accounting value for every page of a document which a print job expresses. According to this mode, even when a print job is interrupted for a certain reason, exact accounting to an interruption part can be performed.

[0016] Moreover, in another suitable mode, a print job listing device creates the inspection code for inspecting the justification of a print job and accounting information to associate, it has a means to relate with the print job concerned and accounting information, and to transmit to said airline printer, and an airline printer has a means to judge whether related attachment by the print job concerned and accounting information is just based on the inspection code related with a print job and accounting information. According to this mode, by checking the inspection code related with a print job and accounting information, the existence of the alteration in a print job or accounting information can be detected, and the unauthorized use of accounting information can be prevented.

[0017] Moreover, the accounting rule management tool which uses the print job listing device concerning this invention in a print job and which memorizes the accounting rule for every predetermined print facility, A means to receive assignment of the print facility used in this printing processing corresponding to the printing directions to a document, The accounting rule corresponding to the specified print facility is searched for from said accounting rule management tool, and it has an accounting information creation means to relate with the print job which created accounting information based on the accounting rule searched for, and was created according to printing directions, and to transmit this accounting information to an airline printer.

[0018] According to this configuration, the suitable accounting information according to the print facility specified by the user can be created, and it can relate with a print job, and can transmit to an airline printer.

[0019] Moreover, the airline printer concerning this invention makes accounting carry out to the 1st accounting means, when accounting information is not related with a 1st accounting means perform accounting based on the accounting information which related with the print job and was received, a 2nd accounting means perform accounting based on the pagination outputted in processing of a print job, and the print job that received from the print job listing device, and when related, it has the accounting management tool which makes accounting carry out to the 2nd accounting means.

[0020] According to this configuration, when there is no accounting information in a print job, accounting of the pagination base of a conventional type can be performed, and when accounting information is in a print job, suitable accounting according to that accounting

information can be performed.

[0021]

[Embodiment of the Invention] Hereafter, the gestalt (henceforth an operation gestalt) of operation of this invention is explained based on a drawing.

[0022] [System configuration] drawing 1 is the functional block diagram showing the outline configuration of the printing system concerning this invention. A printing system consists of client equipment 100 and an airline printer 200. In this example, it connects between client equipment 100 and an airline printer 200 in the network 300. However, a gestalt which connects client equipment 100 and an airline printer 200 by a parallel interface etc. is also included in the range of this invention. moreover, in drawing 1 , although client equipment 100 and an airline printer 200 are connected to the network 300 at a time only for one set, it should understand from the following explanation that it is within the limits of this invention also when two or more they are connected at a time -- it is **.

[0023] <Client equipment> client equipment 100 is the computer system equipped with displays, such as input devices, such as CPU, main storage, an auxiliary storage unit, a mouse, and a keyboard, CRT, and a liquid crystal display, etc. in hardware. If it says in respect of a function, client equipment 100 includes application 110, the job creation section 120, the airline printer Research and Data Processing Department 130, and the accounting rule Management Department 140.

[0024] (1) Application 110 applications 110 are application programs, such as a word processor, DTP, a spreadsheet, and database management. Application 110 generates an output-statement document by the input and original data data processing from a user.

[0025] (2) The job creation section 120 job creation section 120 changes the data of the output-statement document which application 110 generated into a format of the predetermined Page Description Language (PDL) which can deal with an airline printer 200, is a unit for creating a print job, and is also called a printer driver. In the job creation section 120, the PDL description creation section 122 performs processing which creates PDL description from the document data of application 110. Moreover, the job creation section 120 describes conditions which the user directed as printing conditions for an output-statement document, such as a paper size and number of copies, with a predetermined format as printed information, and adds them to PDL description of an output-statement document. The printed information creation section 124 creates this printed information. Printed information is also called a job ticket. The job creation section 120 summarizes PDL description and printed information, and constitutes a print job. For example, printed information can be added in a comment format to PDL description.

[0026] Here, with this operation gestalt, in case a print job is created, the accounting information of the print job is created and this is added to a print job as one item of printed information. Thereby, in an airline printer 200, accounting can be performed now based on this accounting information. The accounting information creation section 126 performs creation of accounting information. As accounting information, the number of pages which should be charged, for example can be used. In this case, the accounting information creation section 126 calculates the pagination which should be charged among the total pagination of a document which a print job expresses, and is taken as accounting

information. For example, it substitutes for a chapter start function by insertion processing of the blank paper page description by the side of client equipment 100, and when saying that the inserted blank paper page is not charged, the accounting information creation section 126 makes accounting information the value which subtracted the number of the blank paper pages inserted from the total pagination of a print job. In addition, the creation procedure of accounting information is explained anew later.

[0027] (3) The airline printer Research and Data Processing Department 130 airline-printer Research and Data Processing Department 130 memorizes and manages the information about the function which each available airline printer 200 has from client equipment 100. Drawing 2 is an example of the functional information on a certain airline printer registered into the airline printer Research and Data Processing Department 130. According to this, this airline printer has the interleaving paper (suiting and carrying out) function, but it turns out that holds, such as a chapter start and a PEJIPU REXX function, are not. Such functional information is registered into the airline printer Research and Data Processing Department 130 for every airline printer. Registration of the functional information to the airline printer Research and Data Processing Department 130 is performed by the system administrator when an airline printer is connected to network 300 grade.

[0028] It can substitute for a certain thing among the functions which the airline printer does not have according to the joint activity of the application 110 of client equipment 100, the job creation section 120, or these both. The already explained chapter start is the type, and the same alternative processing is possible for it also about the interleaving paper illustrated to drawing 2 , PEJIPU REXX, a label function, and each function of ********.

[0029] The information which the airline printer Research and Data Processing Department 130 holds is referred to from the job creation section 120 at print job creation time. That is, the job creation section 120 judges whether with reference to the airline printer Research and Data Processing Department 130, the airline printer of an output destination change has the function specified by the user. And there is assignment of the function which an output destination change does not have, and when alternative processing with client equipment 100 is possible for the function, the job creation section 120 performs alternative predetermined processing.

[0030] (4) Explain the content of the alternative processing by the side of the alternative processing each airline printer function illustrated to drawing 2 here and client equipment 100 in an airline printer function and a client side. In addition, about a chapter start function and its alternative processing, with the conventional technique, since it is explanation ending, it already omits.

[0031] a) Interleaving paper interleaving paper is a function which inserts the form which is not written at all between pages, for example, it is used in order to show the break of the output of each print jobs, and the break of each PERT in one print job. If an interleaving paper insertion point is specified with client equipment in forms, such as a head of a print job, a tail, or "what page back", an airline printer will insert a blank paper (interleaving paper) in the specified location. Although it depends on each airline printer [whether inserted interleaving paper is charged and how much it charges], generally, interleaving paper is considered to be a special function and 1 page per one sheet of interleaving paper

is charged in many cases.

[0032] An alternative of the interleaving paper function by the side of client equipment can be performed by inserting the PDL description showing a blank paper page in the location of the interleaving paper in a print job. In one side printing, in 1 page and double-sided printing, 2 pages and blank paper page description are inserted about assignment of one sheet of interleaving paper. Therefore, if this function is used, when it compares with the airline printer which does not charge an interleaving paper function at all by the accounting of the conventional airline printer the case of double-sided printing, accounting becomes high by 2 pages per one sheet of interleaving paper, and accounting will become high by 1 page per one sheet of interleaving paper in comparison with the airline printer charged by 1 page per one sheet of interleaving paper, for example.

[0033] b) PEJIPU REXX PEJIPU REXX is the function which can perform both sides and one side assignment for every page. For example, if one side printing, 2 and 3, and the 4 or 5th page instruct 1, 6, and the 7 or 8th page of the 8-page document to be double-sided printings, in the case of the airline printer which has a PEJIPU REXX function, the following printing results will be outputted. In addition, in the next notation, "A/B" expresses the printing result of the form of one sheet, A shows the side front of a form and B shows the background of a form. The figure applied to A and B shows the page number in the inside of a document, and X shows the field non-printed (therefore, image processing is not performed, either).

[0034]

[Equation 1]

1/X 2/3 4/5 6/X 7/X What is necessary is just to send client equipment to an airline printer, after specifying PEJIPU REXX for the data of such a 8-page document when 8 / X airline printer has a PEJIPU REXX function. An airline printer realizes printing as assignment by adjusting a form feed. In addition, the case of accounting where it considers as a part for the pagination which carried out printing processing (the above-mentioned example 8 pages) is common.

[0035] The alternative by the side of the client equipment of a PEJIPU REXX function can be performed by specifying double-sided printing about the whole document, after inserting PDL of a blank paper page in the degree of the description of a page by which one side assignment was carried out. For example, what is necessary is in the case of the 8-page document illustrated previously, to insert description of a blank paper page 1 in a print job, and after 6 or 7-page description, respectively (for 8 pages to be needlessness since it is the last page), and just to direct double-sided printing. Thereby, the following printing results are obtained. The blank paper page which "white" inserted is shown.

[0036]

[Equation 2]

1-/white 2/3 4/5 6-/white 7-/white 8/X -- an airline printer will perform a total of 11-page double-sided printing which added a part for the inserted three-page blank paper in this case. Therefore, if an airline printer performs the conventional accounting, it will be mostly charged by 3 pages rather than the case where the PEJIPU REXX function of an airline printer is used.

[0037] c) It is also called a label functional variable-data print facility, and is used for

printing of a document, direct mail, etc. It is the function which compounds and prints the image part according to individual for every page into a common image part (called form). When using this function of an airline printer, client equipment generates PDL description of the image part according to individual of form and each page, they are compounded with delivery and an airline printer to an airline printer, and each page is printed. In an airline printer with this function, in order to attain differentiation with the printing industry, about the part exceeding predetermined pagination per form, a discount rate called [several / of 1-page usual tariff / 1/] is set up in many cases.

[0038] What is necessary is to only compound a part for form and a local area by the client equipment side, to create the perfect data of each page, and for PDL to describe this, and just to send to an airline printer, in order to substitute a client equipment side for this label function. In this case, if an airline printer performs accounting of the conventional pagination base, the usual tariff will be uniformly charged about all pages, and a discount like the airline printer of label print facility loading will not be obtained.

[0039] d) A ********** function is a function which distinguishes and outputs two or more number of copies for each part. When using this function, number of copies is specified from client equipment, **** is specified, and a print job is sent. Then, a **** output is realized by changing an airline printer the number of specification parts every, carrying out it, printing each page of the sent print job, and outputting a printing result to each output bottle of a sorter in order.

[0040] What is necessary is just to create the print job which repeated the PDL description showing the document of the original copy created with application 110 by appointed number of copies, in order to substitute a client equipment side for this function. the document located in a line in order of the page when processing this by the airline printer side -- the number of specification parts -- order -- output profit ****.

[0041] (5) The accounting rule Management Department 140 accounting rule Management Department 140 has memorized and managed the rule for calculating the accounting value of a print job. The method of accounting when carrying out alternative processing (namely, blank paper page description insertion processing) for example, of the chapter start function in the application 110 or the job creation section 120 of client equipment 100 is specified as an accounting rule (for example, the inserted blank paper is not charged). Drawing 3 is drawing showing an example of the content of data of the accounting rule Management Department 140. The accounting rule is defined for every function. This accounting rule is applied also when an airline printer realizes that function, and realizing by the alternative processing by the side of client equipment. That is, this operation gestalt aims at it not being based on the implementation method of a function, but the amount of accounting becoming the same.

[0042] For example, a chapter start function is not charged in the example of drawing 3 (namely, accounting zero). Therefore, when following this accounting rule and alternative processing of the chapter start function is carried out with client equipment, it does not charge to image processing of the inserted blank paper page. Also when the chapter start function of an airline printer is used, it does not charge to processing by the function. On the other hand, about interleaving paper, the rule of charging one page per sheet is registered. Even if this rule realizes interleaving paper by the airline printer side, even if it

realizes by blank paper page insertion processing of a client side, it is the same, and accounting for 1 page of "one-sheet" hits is the same in both [of one side printing and double-sided printing] cases. Moreover, about a label function, the discount rate is set up according to the pagination per form, and even if this realizes a label function by any of an airline printer and client equipment, it is the same.

[0043] The information of this accounting rule Management Department 140 is referred to from the accounting information creation section 126 at print job creation time. That is, the accounting information creation section 126 asks the accounting rule Management Department 140 for the accounting rule corresponding to the "function" of the chapter start used in a print job, and others, and creates accounting information according to the rule.

[0044] The <airline printer> airline printer 200 is equipped with the computer system containing CPU for controlling the mechanical print station which performs printing processing to a form, and its print station, and operating them in hardware, main storage, an auxiliary storage unit, etc. If it says in respect of a function, an airline printer 200 includes the job management section 210, the job-processing section 220, IOT (image output terminal)230, and the accounting Management Department 240.

[0045] The job management section 210 receives a print job from client equipment 100, and performs various kinds of managements, such as spooling (processing sequence management), about the print job which received.

[0046] Based on the image data of predetermined formats, such as a raster format, on a form, IOT230 is equipment for forming a visible image, and is also called a print engine.

[0047] By interpreting a print job, the job-processing section 220 generates the image data which is each page of the output-statement document which application 110 drew up, and supplies it to IOT230. For this reason, in addition to the interpretation processor (called an interpreter) which interprets PDL description and generates an image data, the job-processing section 220 detects printed information from a print job, and has the function to publish control instruction according to it to IOT230. Although accounting information may be contained in a print job as a kind of printed information, in the job-processing section 220, the accounting information extract section 222 extracts accounting information from a print job.

[0048] The accounting Management Department 240 is a device for performing accounting in an airline printer 200. An example of the detail configuration of the accounting Management Department 240 is shown in drawing 4 . With the configuration of a graphic display, the accounting Management Department 240 has the 2nd accounting section 242, the 1st accounting section 244, and the accounting accumulation section 246.

[0049] The accounting accumulation section 246 is the device in which the accumulation result of the accounting value of each print job which the airline printer 200 processed is held. For example, when expressing the value of accounting by the processed pagination, the accounting accumulation section 246 is good at the counter which counts the pagination processed, for example. This counter holds the number of the pages processed by then after the time of initialization. Although it can convert into the amount of money, being able to apply the unit price per page to pagination and can also count, in order to simplify explanation, below, let pagination be an accounting value. In addition, though natural, it is unrelated to the essence of this invention what is chosen as the unit of

accounting.

[0050] The 2nd accounting section 242 is a device known from the former in which it charges based on the processed pagination. The 2nd accounting section 242 carries out the sequential count of the completion signal of printing in every page outputted, for example from IOT230 until processing of one print job is completed. Moreover, the signal of the 1-page completion of image formation by the job-processing section 220 may instead be counted. It depends on the structure [any are taken] of an airline printer 200. Furthermore, the structure which adds counted value according to utilization of various functions (for example, ****, a special image processing, etc.) which an airline printer 200 offers can also be established. Thus, it can be said that the 2nd accounting section 242 is the device in which the accounting value according to "processing which the airline printer performed" is determined.

[0051] On the other hand, the 1st accounting section 244 is the device in which it charges based on the accounting information contained in a print job. The 1st accounting section 244 increments the counter of the accounting accumulation section 246 from the accounting information extract section 222 according to reception and this accounting information for the accounting information extracted from the print job. For example, when accounting information expresses "the pagination which should be charged to a print job", the 1st accounting section 244 increments the counter of the accounting accumulation section 246 by the pagination.

[0052] The accounting Management Department 240 has such the two accounting sections, when the print job does not contain accounting information, it makes accounting perform in the 2nd accounting section 242, and when accounting information is included, it makes accounting perform in the 1st accounting section 244. Thus, the accounting Management Department 240 can charge according to the accounting information about the print job containing accounting information, and can perform accounting as usual about the print job which does not contain accounting information. Therefore, the airline printer 200 of this operation gestalt can perform accounting also with the print job from client equipment without the accounting information creation section 126.

[0053] In the above, the printing structure of a system of this operation gestalt was explained. Although the configuration with which the system (the job management section 210, job-processing section 220 grade) which controls above IOT230 and IOT230 which perform printing to a form was united was shown, naturally this invention is applicable also to the configuration connected by the network or the cable by using these both as another equipment.

[0054] [Procedure], next the procedure of the accounting in the printing system of this operation gestalt are explained.

[0055] With <processing in client equipment> client equipment 100, the accounting information which should be matched with a print job is generated. This processing is started by the printing directions from the user interface of the application 110 by the user.

[0056] A user directs printing activation, after specifying the airline printer 200 which makes a document print and setting up various printing conditions, such as a paper size and number of copies, from this user interface. If these directions are inputted, application 110 will start the job creation section 120, will pass an identifier, printing conditions, etc.

of an airline printer 200 of an output destination change, and will request creation of a print job.

[0057] In the carrier beam job creation section 120, the PDL description creation section 122 generates PDL description for this from the document data of application 110. If printing conditions etc. have assignment of functions, such as a chapter start function and an interleaving paper function, at this time, the job creation section 120 will investigate whether that specified function is in the airline printer 200 of an output destination change with reference to the airline printer Research and Data Processing Department 130. When the output destination change does not have the specified function, the PDL description creation section 122 performs alternative processing to the functions, such as blank paper page description insertion. In addition, the alternative processing to each function was already explained. When it has the function in which the output destination change was specified, the PDL description creation section 122 should just perform transform processing to the usual PDL.

[0058] In parallel to this processing, the printed information creation section 124 creates the rear stirrup of creation processing of such PDL description as printed information so that an airline printer can interpret information, such as the printing conditions which the user directed, for example, a paper size/number of copies etc.

[0059] The accounting information creation section 126 asks for the accounting information to that print job at this time. Here, when the activity of "functions", such as a chapter start, is directed to that print job, the accounting rule Management Department 140 is asked for the accounting rule corresponding to this function, and accounting information is calculated according to that rule.

[0060] For example, when using "the pagination which should be charged to a print job" as accounting information, fundamentally, the accounting information creation section 126 asks for the pagination of the document for printing, and makes this accounting information. However, when "functions", such as a chapter start, is specified, accounting is adjusted according to the rule registered into the accounting rule Management Department 140.

[0061] If it says in the example of an accounting rule shown in drawing 3 , as for the chapter start, accounting is set up with zero, for example. Therefore, the accounting information of the print job (other functions shall not be specified) as which the chapter start was specified serves as pagination of the document of an original copy which became the basis of the job. Although the pagination of a document which description of a blank paper page is inserted in a print job in the job creation section 120, consequently a print job expresses will increase by the blank paper page from the pagination of an original copy document when the airline printer of an output destination change does not have a chapter start function, "the pagination which should be charged" shown in accounting information turns into pagination of an original copy document.

[0062] For example, the case where a chapter start is directed that the 6th page becomes a side front by double-sided printing about a 9-page document is considered. Supposing the airline printer of an output destination change does not have a chapter start function, in the job creation section 120, the airline printer specified first will insert description of a blank paper page for not having the chapter start function among the 6th page with the

5th page in the PDL description creation section 122, judging from the airline printer Research and Data Processing Department 130, and will create PDL description of ten-page parenchyma. And the printed information which shows double-sided printing in the printed information creation section 124 is created, and the accounting information showing the pagination (9 pages) which should be charged in the accounting information creation section 126 is created. The job creation section 120 adds these printed information (accounting information is included) to PDL description, and creates a print job. In addition, the printout which this print job expresses is as follows.

[0063]

[Equation 3] 1/2 3/4 5/white 6/7 The example of description of the print job which carried out in this way and was created to 8 / 9 drawing 5 is shown. In this example, PostScript (trademark of Adobe Systems) which has spread widely is used as PDL. However, probably, it will be clear from explanation of this description that this invention is not a thing depending on specific PDL. This example is an example of description of the print job in the case of specifying a chapter start that the 6th page becomes a side front to a 9-page original copy document, and performing double-sided printing.

[0064] It is at the example of this drawing 5 , the first two lines, i.e., [Equation 4]. %%XI-plex Duplex%%XI-validPage 9 is printed information (job ticket). Printed information is described as a comment line (line which begins from a notation "%") of PostScript. It is shown that the 1st above-mentioned line is double-sided printing (Duplex), and the 2nd line shows accounting information. This accounting information shows that the effective page as an object for accounting among the total pagination outputted as a result of processing of a print job is 9 pages. In this example, although the pagination outputted in processing of a print job is 10 pages (the blank paper page inserted for the chapter start is included), since it is setting out of not charging a chapter start, the inserted blank paper page is removed from effective pagination.

[0065] It is description for the printing image creation of a document from which continuing after printed information becomes the body of a print job. The content of each page is described from the comment line the "%%Page:page number" before a comment line called the next "%%PageTrailer." In addition, although blank paper page description is inserted in the 6th page in it in order to substitute this example for a chapter start function, it is, (A, i.e., [Equation 5]) of drawing 5 . %%page: It is description called -6showpage%%PageTrailer.

[0066] In addition, the accounting information explained above is created, also when substituting a client equipment side for the function of an airline printer, and also when that is not right, and it is added to a print job. Since accounting information is described by in the form of the comment, even if it is equipment without the function in which the airline printer of the job destination processes accounting information temporarily, the accounting information is only disregarded in that case, and a side effect is not brought to the drawing processing which is the original object.

[0067] In addition, if the control code of PostScript called device control is used instead of adding accounting information to a print job in the form of a comment sentence in this way, it is also possible to embed accounting information during PostScript description.

[0068] Thus, the print job containing the created accounting information is transmitted to

an airline printer 200 through network 300 grade.

[0069] If the job management section 210 performs scheduling of job processing and sequence comes by the airline printer 200 which received the <processing in airline printer> print job, the print job will be passed to the job-processing section 220. The job-processing section 220 interprets the printed information (job ticket) of the head of a print job first, and acquires information, such as printing conditions. In the case of the print job of drawing 5 , from the analysis of a head line, it turns out that the job concerned is double-sided printing, and the job-processing section 220 drives IOT230 by double-sided output mode. Moreover, the accounting information extract section 222 extracts the accounting information contained in printed information, and passes the accounting Management Department 240. In the example of drawing 5 , the accounting information that the effective pagination for accounting is 9 pages is contained, and the accounting information extract section 222 transmits this information to the accounting Management Department 240. at the carrier beam accounting Management Department 240, accounting based on accounting information for this should be performed about this print job -- ** -- it judges and the 1st accounting section 244 is operated.

[0070] After the processing about printed information finishes, the job-processing section 220 processes a print job in order by the well-known printing job-processing function including a PDL interpreter function, and carries out the printout of the image of each page generated as a result through IOT230. In the example of drawing 5 , a blank paper image will be generated as the 6th page at this time, and, as a result, the 6th page will be outputted as a blank paper. In the case of the print job of drawing 5 , in the job-processing section 220, 10-page image processing is performed and IOT230 also performs output actuation for 10 pages. If the output of all these ten pages is completed, the job-processing section 220 will notify the accounting Management Department 240 of that. The 1st accounting section 244 recognizes this that the page which should be charged about the job concerned from the accounting information of the print job concerned is 9 pages at the carrier beam accounting Management Department 240, and the accounting value which the accounting accumulation section 246 holds is made to increase by 9 pages.

[0071] By such processing, it can charge by effective pagination (an example 9 pages) according to the accounting rule set up beforehand irrespective of the pagination (an example 10 pages) in which the airline printer 200 carried out image processing actually.

[0072] In the above, the accounting in the airline printer 200 based on accounting information was explained. In addition, when a print job is received from the client equipment without an accounting information creation function of a common type, it is detected that accounting information is not contained in the job-processing section 220. Then, the 2nd accounting section 242 which the accounting Management Department 240 is notified of that, consequently performs internal accounting by accounting information operates, and whenever it performs processing which is 1 page, the accounting sequence of the processing pagination base beforehand registered into the airline printer 200, such as making the counted value of the accounting accumulation section 246 increase by every 1 page etc., is performed.

[0073] In addition, the above example was an example when not charging about a chapter start function. However, a charging system is the agreement between an equipment

vendor and a user, and can be charged about a chapter start function. For example, in the example which specifies a chapter start that the 6th page becomes a side front to a 9-page above-mentioned original copy document, and performs double-sided printing, the case where it sets up when 1 page was charged also to the blank paper page which increased for the chapter start is considered. In this case, an accounting value becomes 10 pages also including the blank paper page inserted.

[0074] As mentioned above, although the chapter start function was taken for the example, it is also the same as when other functions are specified. For example, the case where interleaving paper is specified is considered. In the example of the accounting rule shown in drawing 3 , interleaving paper is set up with accounting for 1 page per sheet. That is, double-sided printing or one side printing is also accounting for 1 page per one sheet of interleaving paper. This rule is the same, when an output destination change has an interleaving paper function, or when it does not have. That is, when using the interleaving paper function of an airline printer, or when substituting for an interleaving paper function by inserting a blank paper page by the client equipment side, in creating accounting information by the client equipment side, it treats equally. What is necessary is not to generate accounting information but just to leave accounting to the accounting system by the side of an airline printer, when it seems that he wants to perform accounting special to the interleaving paper function of an airline printer. Now, when there is assignment of interleaving paper, the accounting information creation section 126 of client equipment 100 adds the "number of sheets" of the interleaving paper inserted in the pagination of an original copy document, and makes this accounting information. For example, since it inserts description of the blank paper page for 2x2 (= 4) pages in interleaving paper alternative processing of the job creation section 120 in inserting two sheets of interleaving paper in a 10-page original copy document by double-sided printing, when there is no interleaving paper function in the airline printer of an output destination change, the pagination which carries out image processing with an airline printer 200 becomes 14 pages. However, the accounting information created in the accounting information creation section 126 becomes 12 pages which added two sheets of interleaving paper to the pagination of an original copy. In an airline printer 200, 12 pages shown in accounting information are added to an accounting value instead of the 14-page pagination which carried out image processing actually.

[0075] What is necessary is just to consider accounting of a PEJIPU REXX function to be a chapter start similarly. In the example of a rule of drawing 3 , if PEJIPU REXX is not charged, it is set up. Therefore, when it is the job as which only PEJIPU REXX is specified, the accounting information creation section 126 makes pagination of an original copy document accounting information. Although the addition of blank paper page description will be performed by client equipment 100 as the alternative processing and, as for an airline printer 200, only the part of an additional blank paper page will perform many image processing rather than the pagination of an original copy document as a result when an airline printer 200 does not have a PEJIPU REXX function, accounting becomes only a part for the pagination of an original copy document based on accounting information.

[0076] About the label function, the discount rate is gradually set up according to pagination V per 1 form with the rule of drawing 3 . That is, although 1 page is charged for

every page if V is to 10 pages, in 10< V<=100, only 0.8 pages is charged about each page. When V furthermore exceeds 100, a discount is given further and it becomes accounting for 0.4 pages per page. For example, when alternative processing of a label function is performed in the job creation section 120, whenever the accounting information creation section 126 creates description of the page which used the label, it acquires current page number N from the PDL description creation section 122, it calculates total pagination [of the form of this N] F to V=N/F, calculates the accounting value corresponding to this V from the above-mentioned accounting rule, and totals this. For example, the total pagination of form will call it accounting for 0.8 pages about this 1 page, when the present page number is 12 in 1, and this information is totaled in the accounting information creation section 126. When the value of F is [the final page of a job] 12 pages in 1, accounting information serves as an accounting value for 11.6 (= 1x10+0.8x20) pages. It is also possible to process to round off below decimal point etc. If all pages are processed and all one jobs are created, accounting information will be added to a print job, it will be sent to an airline printer 200, and accounting will be performed by the back in the procedure mentioned above.

[0077] In addition, when an airline printer with a label function is an output destination change, the accounting information creation section 126 calculates the accounting information of a job according to an above-mentioned rule from the total F of form, and the number (pagination) N of the individual information (variable data) applied to these forms.

[0078] Creation processing of the accounting information of ******** is the same as a label function.

[0079] In addition, what is necessary is to simulate the printout at the time of realizing all the function of them, and just to count the pagination which should be charged according to the rule of the accounting rule Management Department 140 in it, when two or more functions are specified.

[0080] [Setting-out [of an accounting rule] / modification] accounting rule is fixed between a system vendor and a user at the time of a sale of a printing system etc. And the rule fixed at this time is registered into the accounting rule Management Department 140 using a predetermined input tool. It is also possible to change the rule registered once later according to modification of an agreement etc. Namely, what is necessary is to correct the registration rule of the accounting rule Management Department 140 using an input tool, and just to make the agreement reflect, when modification of an accounting rule is fixed among vendor users.

[0081] As explained beyond [the effectiveness of an operation gestalt], with this operation gestalt, it asks for the accounting information of a print job according to the accounting rule registered into the accounting rule Management Department 140, and the accounting information is added to a print job, it transmits to an airline printer 200, and accounting is performed at the client equipment 100 side according to the accounting information corresponding to a print job with an airline printer 200. According to such structure, by the case where the function of an airline printer 200 is used, and the case where alternative processing of the function is carried out with client equipment 100, even when the pagination by which image processing is carried out differs with an airline printer 200, the same frame can be charged. Therefore, even when large modification is added to the device

for functional implementation by system shift etc., the consistency of the charging system in shift order can be maintained by introducing the accounting system of this operation gestalt. In this case, what is necessary is to carry the accounting information creation section 126 and the accounting rule Management Department 140 in existing client equipment 100, and just to register the rule of accounting before shift into the accounting rule Management Department 140.

[0082] Moreover, since accounting information is created with the client equipment 100 into which the content of assignment of printing conditions was inputted according to this operation gestalt, the fine accounting system according to the contents, such as the specified function, can be offered. That is, although special accounting can be performed about the function in accounting by the side of an airline printer when the function of the airline printer itself is used, when alternative processing of the function is carried out by the client side, it cannot but charge with the pagination base, and fine accounting according to the function is difficult. On the other hand, with this operation gestalt, since accounting information is created with client equipment 100, even when performing alternative processing of a function by the client equipment side, accounting according to the function can be performed.

[0083] In the example beyond [the format of accounting information], "the pagination which should be charged" was used as accounting information. However, the format of accounting information is not restricted to this. For example, "pagination which should not be charged" can also instead be made into accounting information. For example, it is the basis of rule setting out referred to as not charging a chapter start function, and when a blank paper page is inserted by the chapter start function, let pagination of the inserted blank paper page be accounting information. Description of the accounting information in this case is as follows, for example.

[0084]

[Equation 6] %%XI-invalidPage 1 -- this accounting information is also described as a comment. This accounting information shows that the page which should be charged and which does not come out is 1 page.

[0085] In an airline printer 200, the sequential count of the pagination which carried out image processing is carried out as usual. And final accounting is determined by subtracting "the pagination which should be charged and which does not come out" shown in accounting information from the counted value in the place which all processings of a print job completed.

[0086] In addition, when making into accounting information pagination which should not be charged, even if it does not determine the amount of accounting for every print job, the pagination which carried out image processing, and the pagination which should not be charged are totaled independently, and accounting may be determined from the difference of these two total results at the time of a maintenance. That is, as shown in drawing 6 , you may constitute from an accounting counter 243 which counts the pagination which carried out image processing of the accounting Management Department 240, and a deduction counter 245 which counts the pagination which is shown in accounting information, and which should not be charged.

[0087] In addition, above, although pagination was used as a value of accounting, the unit

of not only this but the amount of money and others may be used.

[0088] With the operation gestalt beyond [a modification 1], the accounting information to the whole print job was created, and this was added to the print job. On the other hand, in this modification, the information on accounting for every page is added to a print job. That is, the information about the amount of accounting for every page is given to the print job. The example of description of the accounting information in this case is shown below.

[0089]

[Equation 7] %%XI-validPageSelect 5 1 1 0 4 1 -- here shows that "%%XI-validPageSelect" is the information about accounting for every page. The train of the following numeric value is every 2 set [1] from the left, and the number whose front numeric value is a page, and a next numeric value show the amount of accounting per page in the group. That is, the above-mentioned example is accounting per [1] page about 5 pages of the head of a job, respectively, and accounting shows [pages / of 0 and after that / 4] that it is accounting per [1] page about the following 1 page.

[0090] In this case, with reference to the accounting rule Management Department 140, the accounting information creation section 126 determines the amount of accounting of each page, and describes accounting information based on it. For example, when alternative processing of the chapter start function is carried out by blank paper page insertion in the job creation section 120 under the accounting rule of not charging a chapter start function, the accounting information creation section 126 judges the inserted blank paper page with accounting being 0, and creates the accounting information which shows it.

[0091] According to this modification, even when processing of the print job in an airline printer is interrupted according to a failure etc., quite exact accounting can be performed. That is, since the counter of accounting was operated with it based on accounting information after processing of all the pages of a print job finished as the above-mentioned operation gestalt, when a job was interrupted, it was difficult [it] to calculate the exact accounting value in the interruption event. On the other hand, in this modification, since the amount of accounting is known for every page, the exact accounting value to the interruption part of a job can be calculated.

[0092] By printing using a [modification 2] label function, although 1 page was printed, it may be thought that most is the same content as other pages, and it is too high only by mere parts differing since it was charged by 1 page. Moreover, by the interleaving paper function, by having charged 1 page at the inserted blank paper, if too high, it tends to be caught, but since the interleaving paper function itself is a convenient function, it cannot balance other services in not charging this.

[0093] in such a case, the amount of accounting -- the decimal point management -- carrying out -- ** -- it is alike and more appropriate accounting can be realized. The example of the accounting information at the time of combining the decimal point management in the amount of accounting with accounting management in the page unit of a modification 1 is shown below.

[0094]

[Equation 8] %%XI-validPageSelect 4 0.8 2 0.2 4 0.7 -- in this example, 4 pages of the start are accounting for 0.8 pages per page. That is, after 4-page printing finishes, the grand

total of accounting is set to 3.2, and if below decimal point is rounded off, it will become accounting for 3 pages. Since the following 2 pages are 0.2 pages per page, after printing to 6 pages finished, when the accounting grand total is set to 3.6 and below decimal point is rounded off, they is changeless at accounting for 3 pages. After printing of all pages finishes, the accounting grand total is set to 6.4, and the frame of final accounting becomes 6 pages which rounded off this.

[0095] In the system of this operation gestalt of adding [modification 3] accounting information to a print job, the cure to the alteration of accounting information etc. is needed. namely, -- adding a new page to the print job, after accounting information is rewritten at a low price or accounting information is created justly **** -- etc. -- a malfeasance must be prevented.

[0096] As this cure, in this modification 3, the code proving the effectiveness of accounting information is matched with accounting information, and is managed. For example, as a simple example, the whole (printed information is included) print job is considered to be one file, 2 bytes of checksum is calculated, and the example which makes this an inspection code can be considered. The example of the accounting information which added the inspection code is shown below.

[0097]

[Equation 9] %%XI-validPage 9 17623 -- in this example, the part of "17623" is an inspection code. Since the value of a checksum will change if somewhere in one print jobs are altered, the data of an alteration can be known by the comparison with this inspection code. Therefore, with an airline printer, when a print job with accounting information is received, a checksum is performed first and it compares with the inspection code attached to accounting information. When both are in agreement, it judges that they are a just print job and accounting information, and accounting of an above-mentioned operation gestalt is performed. When both are not in agreement, it judges that the alteration was added to a print job body or accounting information, and predetermined processing is performed. charging pagination which disregarded and processed attached accounting information about accounting by accounting of a conventional type used as the base, although processing of that print job is canceled or processing of a print job is performed as processing in this case, for example **** -- etc. -- there is an approach. Anyway, the content of the processing performed at the time of alteration detection is registered beforehand.

[0098] In addition, a checksum is a very simple example, and now, also when security is weak, it is considered enough. In order to strengthen security, combination with a well-known code technique is effective. That is, predetermined encryption processing is performed to either [at least] the accounting value in accounting information, or an inspection code. Thereby, accounting information is as follows, for example.

[0099]

[Equation 10] %%XI-validPage dso -- in this example, both the accounting value and the inspection code are enciphered collectively 0 sah 2198 dk. The decode algorithm of this code is carried in an airline printer, and after this decodes, check and accounting are performed. By such encryption, the alteration of accounting information becomes very difficult.

[0100] Moreover, the secret ID of an airline printer is registered into client equipment, and it is also suitable to encipher an accounting value and a checksum value using this secret

ID. Since the accounting information enciphered by the secret ID of a certain airline printer cannot be correctly decoded with other airline printers, it can prevent injustice, like other airline printers use about the accounting information created once.

[0101] In the above, the suitable operation gestalt and suitable modification of this invention were explained. In addition, although the job creation section 120 equivalent to a printer driver created accounting information in the above example, it is easy to be natural even if it gives an accounting information creation function to application 110.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the functional block diagram showing the outline configuration of the printing system concerning this invention.

[Drawing 2] It is drawing showing an example of the information which the airline printer Research and Data Processing Department has.

[Drawing 3] It is drawing showing an example of the information which the accounting rule Management Department has.

[Drawing 4] It is drawing showing an example of the internal configuration of the accounting Management Department.

[Drawing 5] It is drawing showing an example of the content of the print job containing accounting information.

[Drawing 6] It is drawing showing other examples of the internal configuration of the accounting Management Department.

[Description of Notations]

100 Client Equipment, 110 Application, 120 Job Creation Section, 122 The PDL description creation section, 124 The printed information creation section, 126 Accounting information creation section, 130 The airline printer Research and Data Processing Department, 140 The accounting rule Management Department, 200 Airline printer, 210 The job management section, 220 The job-processing section, 222 Accounting information extract section, 230 IOT (image output terminal), 240 The accounting Management Department, 242 The 2nd accounting section, 244 The 1st accounting section, 246 The accounting accumulation section, 300 Network.